

# REMARKS

## Status of Claims

Claims 1 and 3-30 remain pending in the present application. No amendment to the claims has been made in this election and traverse.

## Traverse of Restriction

The justification for this four-way restriction is that the inventions of the four groups identified by the Examiner are related as subcombinations disclosed as usable together in a single combination, and the subcombinations are distinct from each other because it can be shown that they are separately usable. The Examiner justifies this conclusion by asserting that "invention I has separate utility such as "programmable graphics pipeline;" "invention II has separate utility such as "processing graphics data and media data;" invention III has separate utility such as "processing variable length data;" and "invention IV has separate utility such as "caching texture data and media data." MPEP § 806.05(d) requires that the Examiner provide an indication of the separate utility following the phrase "such as." In his justification of the restriction, the Examiner has simply repeated what he stated the different groups of claims are each drawn to, in regard to the different subclasses that the Examiner indicates should be search for each group. However, the classification of the claims into four different groups as asserted by the Examiner is not justified and therefore, the phrase associated with that incorrect classification cannot be used as a basis for showing that each invention of each group is separately usable.

All four groups are indicated by the Examiner as falling under Class 345, which is broadly defined in the Manual of Patent Classification as: Computer Graphics Processing, Operator Interface Processing, And Selective Visual Display Systems. Applicants agree that the Class for all of the claims in the application is indeed Class 345, but disagrees with the characterization of each group by the Examiner.

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1 The Examiner asserts that Claims 1 and 3-16 are classified in Class 345, subclass 506. The  
2 manual of patent classification indicates that subclass 506 is indented under subclass 502, which is  
3 indented under subclass 501. Subclass 501 broadly covers "A computer graphic processing system:"  
4 and more specifically, "subject matter comprising apparatus or method for processing or  
5 manipulating data for presentation by a computer prior to use with or in a specific display system."  
6 Subclass 502 broadly covers "Plural graphics processors:" and more specifically "subject matter  
7 wherein more than one graphics processor is used." Subclass 506 covers "Pipeline processors:" and  
8 more specifically, "subject matter wherein the plural processors are operated sequentially." So the  
9 Examiner is asserting that the Claims in Group I correspond to a computer graphics processing  
10 system having a plurality of graphics processors and more specifically, a plurality of pipeline  
11 processors that are operated sequentially. However, applicants' Claim 1 is as follows:

12 A programmable graphics pipeline for processing multimedia data  
13 comprising:

- 14 (a) an instruction cache for storing at least graphics and media  
15 instructions;
- 16 (b) a first register file for storing the multimedia data and  
17 intermediate data;
- 18 (c) a first vector functional unit in communication with the  
19 instruction cache and the register file, said vector functional unit performing at least  
20 graphics and media instructions, to produce at least graphics and media data; and
- 21 (d) an enhanced texture cache in communication with the first  
22 vector functional unit, the first vector functional unit obtaining from said enhanced  
23 texture cache a vector of at least one partition of the multimedia data.

24 Nothing in Claim 1 refers to a plurality of processors or more specifically, to a plurality of  
25 pipeline processors that are operated sequentially. Accordingly, it appears that Claim 1 is not  
26 properly classified in subclass 506.

27 The Examiner indicates that the claims in Group II are "drawn to 'processing graphics data  
28 and media data' classified in class 345, subclass 546." Subclass 546 is indented under subclass 545,  
29 which is indented under subclass 530. Subclass 530 is broadly defined as "Computer Graphics  
30 Display Memory System:" and more specifically as "Subject matter wherein a storage system or  
display memory organization and structure is used for storing image data which is being created and  
processed for presentation." Subclass 545 is broadly defined as "Frame buffer:" and more  
specifically defined as "subject matter wherein the graphics display memory stores the contents of a

1 screen of display image." Finally, subclass 546 is broadly defined as "Multi-format frame buffer:"  
 2 and more specifically as "Subject matter wherein the frame buffer memory stores both video and  
 3 graphics data, such as, YUV for video and RGB for graphics." Accordingly, a claim properly  
 4 classified in subclass 546 would have to be drawn to a frame buffer storage system that stores both  
 5 video and graphics data. However, Claim 17 is as follows:

6  
 7 A method for producing one of graphics pixel data and media output data,  
 8 comprising the steps of:

9 (a) obtaining configuration data from a host processor, said  
 10 configuration data comprising a partitioned data size and a location of an instruction;

11 (b) performing graphics rendering processing on graphics texture  
 12 data with a programmable graphics rendering pipeline to produce graphics pixel data  
 13 when the partitioned data size and the instruction correspond to graphics processing;  
 14 and

15 (c) performing media processing on media source data with the  
 16 programmable graphics rendering pipeline to produce media output data when the  
 17 partitioned data size and the instruction correspond to media processing.

18 There is no mention in Claim 17 of a frame buffer storage system that stores both video and  
 19 graphics data. Claim 17 recites *producing one* of graphics pixel data and media output data, but does  
 20 NOT recite any frame buffer that stores two different types of data. Clearly Claim 17 is not properly  
 21 classified in subclass 546.

22 The Examiner asserts that the claims in Group III are classified in subclass 522, but broadly  
 23 pertains to "Graphic command processing:" and more specifically is directed to "subject matter  
 24 wherein a CPU or a host computer issues a command to a graphic processing system to perform an  
 25 operation." Claim 23 is as follows:

26 A programmable graphics pipeline for multimedia applications that performs  
 27 graphics and media functions, comprising:

28 (a) a vector streaming engine that accesses variable length data  
 29 from a memory and writes pixel data to the memory, wherein the variable length data  
 30 comprise one of graphic texture source data and media source data, and wherein the  
 pixel data are one of graphics pixel data and media pixel data; and

(b) a vector processing engine in communication with the vector  
 streaming engine, said vector processing engine generating the pixel data from the  
 variable length data.

Once again, Claim 23 is apparently improperly classified, since there is no mention of a CPU or host processor issuing commands to a graphic processing to perform an operation. Instead, the graphics pipeline is programmable and carries out the functions recited based on the programs with which it is programmed. But there is no indication that a CPU or host processor supplies the commands to make the graphics processor carry out these functions.

Claim 30 (Group IV) is classified in subclass 552, which is broadly directed to "Texture memory;" and more specifically, to "subject matter wherein the graphics display memory is used for storing shading and other attribute information where the information is added to the 'surface' of a graphical image or object to mimic the surface detail of real objects. However, Claim 30 is as follows:

A method for performing one of a graphics function and a media function on variable length data with a programmable graphics pipeline, comprising the steps of:

- (a) using a vector streaming engine:
  - (i) generating a plurality of output pixel coordinates;
  - (ii) generating a plurality of memory addresses corresponding to the output pixel coordinates at which are stored one of graphics texture data and media source data, wherein the graphics texture data and the media source data are not of equal length; and
  - (iii) caching said one of the graphics texture data and the media source data in a cache;
- (b) passing data retrieved from the cache to a vector processing engine; and
- (c) performing one of the graphics function and the media function on the data retrieved from the cache using the vector processing engine.

It should be apparent that this claim is not specifically directed to storing shading and other attribute information, but is instead is directed to selectively performing one of two different types of functions with a programmable graphics pipeline. Claim 30 also thus appears to be mischaracterized as belonging in subclass 552.

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1 It appears that if the Examiner were to accurately access the properly class for each of the  
 2 independent claims in this application, there would be at most two groups of claims. However, since  
 3 those two groups of claims are generally so closely related, very little effort would be required in  
 4 searching for prior art related to all of the claims in the application. Indeed, the Examiner has already  
 5 made such a search. Accordingly, since there has been inadequate justification for issuing this  
 6 restriction and the reasoning for doing so is not supported, the Examiner is respectfully requested to  
 7 withdraw the restriction.

8 Respectfully submitted,

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12 RMA:klp

13 FAX CERTIFICATE

14 I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and  
 15 Trademark Office at facsimile number 703-872-9306, on June 7, 2004.

16 Date: June 7, 2004

17 *Kathy Law*